

might, by some, be considered of generic importance. Having only two examples, which appear to be females, I prefer for the present to place the species in the genus *Anapera*, and to name it

ANAPERA FIMBRIATA.

Smoky yellow, with the abdomen brown; the epistome pale yellow. The general form and structure are those of *A. pallida*, but it is considerably larger. The antennæ are beset with long black hairs. There is a thick fringe of long black erect hairs or setæ in front of the eye, continued posteriorly along the orbits of the eyes on each side of the middle opaque disk. This fringe exists, but in a much less degree, in *A. pallida*. The triangle on the vertex is longer than broad, and not transverse as in *A. pallida*. There is a series of black setæ along the posterior margin of the head. The thorax is of the same form and with the same black setæ as in *A. pallida*, but they are stronger and more conspicuous. The rudimentary wings are pale smoky yellowish, about as long as broad, with numerous black setæ on the costal area. The abdomen is somewhat round, clothed with black hair, which is very short on the disk, long at the sides and apex; the base has a transverse arcuate fold; the disk is deeply impressed, but, although this is nearly the same in both examples, it is possibly the result of contraction. The legs are as in *A. pallida*, beset with black hairs.

Length 5 lines.

7. On the Terrestrial Mollusks of the Viti Islands.—Part I.

By ANDREW GARRETT, of Huahine, Society Islands.  
(Communicated by Mr. JOHN H. PONSONBY, F.Z.S.)

[Received December 8, 1886.]

The Viti Archipelago, which comprises nearly 200 islands and islets, is embraced in an area between 178° 20' W. and 176° 55' E. long., and between 15° 47' and 19° 13' S. lat. The islands are disposed in three groups—the eastern, intermediate, and western. The former, which is only partially explored, comprises many small islands, mostly of coralline formation, which have been more or less upheaved through volcanic agencies. All the land-shells, so far as known, comprise the same genera of small shells as obtained in the Tonga and Samoa Islands. The middle portion, which includes all the large islands, though imperfectly explored, have so far yielded many large and interesting species. Besides the same genera which occur in the eastern group, we find the genera *Placostylus*, *Nanina*, *Diplommatina*, *Pupina*, and *Lagocheilus*. All these genera, which are represented by peculiar species, connect the land-shell fauna with Australasia and the East Indies. The latest and most interesting discovery is the occurrence of the Asiatic genus *Lagocheilus*, which was found by Mr. Liardet in Gomea Island. The western or Assawa group,

which is unexplored, will undoubtedly produce many species not found in other parts of the archipelago.

The genus *Succinea*, so widely diffused throughout the Pacific islands, has not been discovered in these islands.

The earliest known Vitian endemic land-shells are *Bulimus malleatus*, *B. fulguratus*, and *Helix nouleti*, all described in the 'Revue Zoologique' in 1842, the two former by Dr. Jay, and the latter by Le Guillou. In 1845, Philippi published *Helix pfeifferi*, and Mr. Hinds described *Pythia pollex*. In 1846 and 1847, Dr. Gould added several new species, all discovered by the U. S. Exploring Expedition. In 1855 Dr. Pfeiffer described *Helix ludersi*; and six years later Dr. Dohrn added the beautiful *Bulimus seemanni* to the list of endemic species. In 1865, Prof. Mousson published, in the 'Journal de Conchyliologie,' a complete list of the Viti land and freshwater shells, based on the collections made by Dr. Gräffe and added several new species to the 16 peculiar to the group. In 1870 Mousson's second paper appeared in the same Journal, and he described 26 new species, all collected by Dr. Gräffe. In the meantime several new species were published by H. Adams, Crosse, Angas, and Semper.

In the 'American Journal of Conchology' for 1871, and in the 'Proceedings of the Academy of Natural Sciences of Philadelphia' for 1873, the writer published descriptions and figures of 20 new species, all personally collected. The latest discovery, so far as I can ascertain, is six new minute species collected by Mr. Liardet, which were published and figured with their animals in the 'Proceedings' of the Zoological Society for 1876.

Out of 146 species now recorded 85 are peculiar to the group. The 146 species are embraced in 32 genera, 11 of which are operculated.

#### Genus HELICARION, Férussac.

##### 1. HELICARION VITRININA.

*Nanina? vitrinina*, Liardet, Proc. Zool. Soc. 1876, p. 100, pl. 5. figs. 2, 2a.

"Shell yellow, thin, translucent, perforated, discoidal; whorls  $4\frac{1}{4}$ , last subangulated, the others slightly convex; beneath shining and well rounded; aperture slightly oblique, lunate; suture marginate; peristome thin; columella slightly expanded over the perforation. Animal black, with mantle covering two thirds of the shell, which it cannot enter at first."

"Found in moist situations under logs, in this respect resembling *Vitrina*." (Liardet.)

This species, which is unknown to me, was found at Taviuni Island.

##### 2. HELICARION RAMSAYI.

*Nanina? ramsayi*, Liardet, Proc. Zool. Soc. 1876, p. 100, pl. 5. fig. 3.

"Shell similar to *N. ? vitrinina*. When the animal is out I can detect no difference.

“Animal red; a protuberance on the back rests against the shell anteriorly. It progresses by raising its head, extending the body, and placing the posterior part of the foot down in the form of an arch, lands its body gradually from the head; and this arch thus appears to recede until the caudal extremity is reached. Like *N. ? vitriina*, it cannot at first recede into its shell; and like *Vitrina strangei* of Australia, it leaves mucus in its track of a brick-red colour. *Hab. Taviuni.*” (*Liardet.*)

### Genus NANINA, Gray.

#### 1. NANINA NOULETI.

*Helix nouleti*, Le Guillou, Rev. Zool. 1842, p. 137; Pfeiffer, Mon. Hel. i. p. 69; Reeve, Conch. Icon. pl. 77. fig. 405.

*Nanina nouleti*, Gray, Cat. Pulm. p. 121; (*Trochomorpha*) Albers, Die Hel. p. 60, 2nd ed.; Mousson, Journ. de Conch. 1865, p. 190; (*Xesta*) 1870, p. 111; (*Hemiplecta*) Paetel, Cat. Conch. 1873, p. 85; Schmeltz, Cat. Mus. Godeffroy, v. p. 90 (“*Zonites*” in error).

*Helix (Nanina) rubricata*, Gould, Proc. Bost. Soc. Nat. Hist. 1846, p. 178; Pfeiffer, Mon. Hel. i. p. 69.

*Nanina rubricata*, Gould, Expl. Exp., Shells, p. 29, fig. 66; Gray, Cat. Pulm. p. 129; (*Hemiplecta*) H. & A. Adams, Gen. Moll. ii. p. 223.

So far as known, this species is restricted to Viti Levu and Ovalau Islands, where it is not uncommon beneath decaying vegetation in forests.

It may be distinguished by its large size (25 to 30 millim. in diam.), dark chestnut-colour, globose-turbinata form, shining surface, and chiefly by the spiral impressed striæ on the body-whorl.

#### 2. NANINA CASCA.

*Helix calva*, Gould, Proc. Bost. Soc. Nat. Hist. 1846, p. 179; Pfeiffer, Mon. Hel. i. p. 41.

*Nanina calva*, Gray, Cat. Pulm. p. 129.

*Nanina casca*, Gould, Expl. Exp., Shells, p. 31, fig. 69; H. & A. Adams, Gen. Moll. ii. p. 222; (*Orobia*) Albers, Die Hel. 2nd ed. p. 59; Mousson, Journ. de Conch. 1865, p. 191; (*Xesta*) 1870, p. 112; (*Thalassia*) Paetel, Cat. Conch. 1873, p. 84; Schmeltz, Cat. Mus. Godeff. v. p. 90.

*Helix vitiensis*, Pfeiffer, Proc. Zool. Soc. 1855, p. 108, pl. 32. fig. 9; Malak. Blätt. 1857, p. 35.

*Nanina vitiensis (Xesta)*, Pfeiffer, Vers, p. 120.

*Eurypus cascus*, Semper, Phil. Landmoll. i. p. 37, pl. 1. fig. 17.

This species, like *N. nouleti*, is confined to Viti Levu and Ovalau. Like all the Viti species, lives beneath decaying leaves and under rotten wood.

A rather solid, subconoid, more or less depressed, smooth, shining species, of a pale corneous colour, sometimes with a slightly ruddy spire and perforated base.

Major diam. 15 to 21 millim. Gould's first name being preoccupied by Lowe for a Madeira *Helix*, he changed it to *casca*.

### 3. NANINA PFEIFFERI.

*Helix pfeifferi* (*Nanina*?), Philippi, Arch. f. Nat. 1845, p. 62; Chemnitz, 2nd ed. *Helix*, pl. 31. figs. 9-10; Pfeiffer, Mon. Hel. i. p. 54; Reeve, Conch. Icon. no. 1282, pl. 185.

*Nanina pfeifferi*, Gray, Cat. Pulm. p. 94; (*Xesta*) Albers, Die Hel. p. 59; H. & A. Adams, Gen. Moll. ii. p. 223; (*Xesta*) Pfeiffer, Vers. p. 120; (*Xesta*) Mousson, Journ. de Conch. 1870, p. 111.

*Helix lurida*, Gould, Proc. Bost. Soc. Nat. Hist. 1846, p. 179; Pfeiffer, Mon. Hel. i. p. 47.

*Nanina lurida*, Gould, Expl. Exp., Shells, p. 31, fig. 68; Gray, Cat. Pulm. p. 128; (*Hemiplecta*), H. & A. Adams, Gen. Moll. ii. p. 223; (*Xesta*) Paetel, Cat. Conch. 1873, p. 85; Mousson, Journ. de Conch. 1865, p. 190; Schmeltz, Cat. Mus. Godeff. v. p. 71.

I received many examples of this species from a missionary who collected them at Kantavu. Dr. Gräffe obtained specimens in Viti Levu.

Though I have followed Pfeiffer and Mousson in referring this species to *pfeifferi*, still I have some doubts as to their being the same species. Pfeiffer and Deshayes assign it to China, and Cuming erroneously cites the Sandwich Islands as its habitat.

Though nearly as large as *nouleti*, it may be distinguished by its light colour, more depressed whorls, and smooth surface.

### 4. NANINA FRAGILLIMA.

*Nanina (Xesta) fragillima*, Mousson, Journ. de Conch. 1870, p. 112, pl. 7. fig. 3; (*Microcystis*) Paetel, Cat. Conch. 1873, p. 84.

*Helix fragillima*, Pfeiffer, Mon. Hel. vii. p. 91.

I am indebted to Dr. Gräffe for examples of this species which he obtained in the interior of Viti Levu. It is also recorded from Kantavu.

It is a thin, transparent, shining, pale horn-coloured species with a depressed spire and strongly convex base. The last whorl is conspicuously angulated. Major diam. 14 millim.

### 5. NANINA SIMILIS.

*Euripus similis*, Semper, Phil. Landmoll. i. p. 37, pl. 1. fig. 18, pl. 2. fig. 91.

*Nanina (Euripus) similis*, Schmeltz, Cat. Mus. Godeff. v. p. 91.

*Helix similis*, Pfeiffer, Mon. Hel. vii. p. 112.

This species, which is unknown to me, was collected by Dr. Gräffe on Viti Levu.

It is described as a solid, orbicular, depressed shell of a fuscous horn-colour, with irregular fuscous lines; whorls  $5\frac{1}{2}$ , the last one obsoletely angulated just above the periphery. Diam. 17, height  $10\frac{1}{2}$  millim.



## 6. NANINA HOYTI.

*Nanina hoyti*, Garrett, Amer. Journ. Conch. 1872, p. 221, pl. 19. fig. 6; Schmeltz, Cat. Mus. Godeff. v. p. 91.

*Helix hoyti*, Pfeiffer, Mon. Hel. vii. p. 525.

Common in Taviuni, Gomea, and Lanthala.

It may be distinguished from *N. casca* by the pale brownish sutural band, darker spire, tawny columella, and the coarse wrinkles just beneath the suture. Major diam. 19 to 20 millim.

## 7. NANINA OTAREÆ.

*Nanina otareæ*, Garrett, Amer. Journ. Conch., 1872, p. 222, pl. 19. fig. 8; Schmeltz, Cat. Mus. Godeff. v. p. 91.

*Helix otareæ*, Pfeiffer, Mon. Hel. vii. p. 524.

I discovered numerous examples of this fine species on the north-west portion of Vanua Levu.

It is about the same size as *N. nouleti*, and like that species has coarse striæ of growth and faint spiral lines, the former being larger and much more uniform in size, and the latter on our species only discernible by the aid of a lens. It may be at once distinguished by the fulvous-brown colour and the large circular pale cream-white basal patch. The last whorl is also more depressed than in *N. nouleti*. Major diam. 29 millim.

## 8. NANINA POLITA.

*Nanina nouleti*, var. *polita*, Mousson, Journ. de Conch. 1865, p. 190.

A few examples found beneath dead leaves on the eastern part of Viti Levu.

It is smaller, more depressed, smoother, more polished, and the whorls are flatter than in *N. nouleti*. The base is also darker, and there is not the least trace of spiral striæ. It may, I think, take specific rank.

## 9. NANINA TENELLA.

*Nanina tenella*, Garrett, Amer. Journ. Conch. 1872, p. 222, pl. 19. fig. 7.

*Helix tenella*, Pfeiffer, Mon. Hel. vii. p. 525.

Not uncommon in forests on the south-eastern part of the Vanua Levu and Kioa.

It is a fragile, smooth, polished, transparent, whitish horn-coloured species shaped like *N. hoyti*, but only 17 millim. in diameter. Its paler colour and thinner transparent texture will at once separate it from *N. casca*.

## 10. NANINA GODEFFROYANA.

*Nanina godeffroyana*, Garrett, Amer. Journ. Conch. 1872, p. 223, pl. 19. fig. 19.

*Helix godeffroyana*, Pfeiffer, Mon. Hel. vii. p. 524.

This fine large species was taken in considerable numbers in the interior of the north-east portion of Vanua Levu.

It may at once be recognized by its large size (38 millim. in diameter), depressed turbinate form, yellowish or light brownish horn-colour with a wide fulvous-brown sutural band.

11. *NANINA ASSAVAENSIS*, n. sp.

Shell imperforate, turbinate globose, indistinctly striated with rather coarse lines of growth, smooth, shining, subpellucid, smoky horn-colour; whorls 5, slightly convex, the last one obscurely angulated just above the periphery; aperture oblique, orbicular-lunifform; peristome thin, straight; columella abbreviately reflected over the axis of the shell.

Diam. 20, height 12 millim.

Abundant beneath dead leaves at Naviti Island, one of the Assawa group.

Genus *MICROCYSTIS*, Beck.

1. *MICROCYSTIS UNISULCATA*.

*Nanina unisulcata*, Mousson, Journ. de Conch. 1865, p. 191; (*Microcystis*) 1870, p. 113; (*Thalassina*) Paetel, Cat. Conch. 1873, p. 85; Schmeltz, Cat. Mus. Godeff. v. p. 90.

*Helix unisulcata*, Pfeiffer, Mon. Hel. v. p. 80.

*Helix (Petasia) unisulcata*, Paetel, Cat. Conch. p. 96.

*Helix laqueata*, Baird, Brenchley, Cruise of the 'Curaçoa,' p. 446, pl. xl. figs. 8, 9.

This peculiar species is widely diffused throughout the group, and, like all the Viti species, is found beneath decaying vegetation.

It is the only species, so far as known, which exhibits a sculptured surface. The unisulcated whorls and more or less nodulous columella will readily distinguish it.

2. *MICROCYSTIS KIOAENSIS*.

*Nanina kioaensis*, Garrett, Proc. Phil. Acad. Nat. Sci. 1873, p. 237, pl. 3. fig. 71 ("kioaensis" in error).

*Nanina? taviuniensis*, Liardet, Proc. Zool. Soc. 1876, p. 99, pl. 5. figs. 1, 1a, b.

This very distinct species only occurred to my notice in the mountain-forests of Kioa Island. Mr. Liardet's *Nanina taviuniensis*, which he obtained at Taviuni and Gomea, differs only from our species in having the base minutely perforated.

It may be distinguished by its depressed globose form, yellowish horn-colour, deep rounded body-whorl, and the prominent columellar fold.

3. *MICROCYSTIS NODULATA*.

*Nanina (Microcystis) nodulata*, Mousson, Journ. de Conch. 1870, p. 114, pl. 7. fig. 4; (*Thalassia*) Paetel, Cat. Conch. ed. 1873, p. 85.

*Helix nodulata*, Pfeiffer, Mon. Hel. vii. p. 67.

Discovered by Dr. Gräffe on Vanua Balavo, one of the Windward Islands.

Its chief characters are its depressed globose form, brilliant horn-

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colour, and nodulous columella. It is more depressed and paler than the preceding species.

#### 4. MICROCYSTIS EXCRESCENS.

*Nanina (Microcystis) excrecens*, Mousson, Journ. de Conch. 1870, p. 115, pl. 7. fig. 5, 1871, p. 8; Paetel, Cat. Conch. 1873, p. 84; Schmeltz, Cat. Mus. Godeff. v. p. 91.

*Helix excrecens*, Pfeiffer, Mon. Hel. vii. p. 67.

*Microcystis excrecens*, Garrett, Journ. Phil. Acad. Nat. Sci. 1881, p. 381.

This small species was found by Dr. Gräffe on the eastern portion of Viti Levu and on several islands in the 'Tonga group. I discovered it on one of the Cook's Islands.

It is nearly of the same size and shape as *M. nodulata*, with the columellar fold of *M. kioensis*, but is much smaller than the latter species.

#### 5. MICROCYSTIS UPOLENSIS.

*Nanina upolensis*, Mousson, Journ. de Conch. 1865, p. 166; (*Microcystis*) 1869, p. 327; 1870, var. *oneataensis*, p. 114; (*Thalassia*) Paetel, Cat. Conch. 1873, p. 85; Schmeltz, Cat. Mus. Godeff. v. p. 90.

*Helix upolensis*, Pfeiffer, Mon. Hel. v. p. 108.

*Helicopsis upolensis*, Pease, Proc. Zool. Soc. 1871, p. 475.

*Helix samoensis*, Baird, in Brenchley, Cruise of the 'Curagoa,' p. 447, pl. xl. figs. 12, 13.

This species was first described from specimens collected by Dr. Gräffe on Upolu, one of the Samoa Islands, and I subsequently discovered it on the islands of Vanua Balavo and Oneata.

A very smooth, highly polished, orbicular, depressed, pale horn-coloured species with a slight columellar nodule.

#### 6. MICROCYSTIS SORORIA.

*Helix sororia*, Cox, Proc. Zool. Soc. 1870, p. 83; Pfeiffer, Mon. Hel. vii. p. 60.

This species, which is unknown to me, was discovered by Mr. Brazier at Ovalan.

A small imperforated, thin, smooth, shining species of the depressed-globose form, with five moderately convex whorls, of a uniform yellowish-olive colour, and with a simple columella.

#### 7. MICROCYSTIS FIRMOSTYLA.

*Nanina firmostyla*, Mousson, Journ. de Conch. 1865, p. 166; (*Microcystis*) 1871, p. 7; Schmeltz, Cat. Mus. Godeff. v. p. 90; (*Microcystis*) Paetel, Cat. Conch. 1873, p. 84.

*Helix firmostyla*, Pfeiffer, Mon. Hel. v. p. 70.

*Helicopsis firmostyla*, Pease, Proc. Zool. Soc. 1871, p. 475.

Obtained by Dr. Gräffe at Tikombia, one of the Windward Islands. He also found it generally distributed throughout the Tonga Islands.

A minute, depressed-convex, highly polished, horn-coloured species, shaped like *M. upolensis*, but only half as large. The columella is sometimes slightly nodulous.

8. *MICROCYSTIS PERPOLITA*.

*Nanina (Microcystis) perpolita*, Mousson, Journ. de Conch. 1869, p. 326, pl. 14. fig. 1; 1870, p. 113; 1871, p. 8, var. *solida*; Schmeltz, Cat. Mus. Godeff. v. p. 90.

*Helicopsis perpolita*, Pease, Proc. Zool. Soc. 1871, p. 475.

*Helix perpolita*, Pfeiffer, Mon. Hel. vii. p. 65.

This species was found by Dr. Gräffe on Viti Levu. It also inhabits Tonga and the Samoa Islands.

It is a convexly depressed, pellucid, highly polished, yellowish horn-coloured species with  $4\frac{1}{2}$  whorls.

9. *MICROCYSTIS STEARNSEANA*, sp. nov.

Shell small, imperforated, depressedly globose, pellucid, smooth, shining, luteous horn-colour; spire convexly rounded, apex depressed; suture linear, narrowly margined; whorls 5, flatly convex, last one not descending in front, rounded, base convex; aperture nearly vertical, roundly lunate; peristome straight, acute, regularly curved, margins remote, not converging; columella with a white, prominent, nearly horizontal tooth-like fold; within the base of the aperture, a short distance from the margin, are two sublamelliform white teeth, the upper one the larger, crest-like, the smaller one close to the columellar fold.

Major diam. 3, height 2 millim.

*Hab.* Viti Islands.

Several examples found beneath rotten wood at Vanua Balavo, and a few were obtained under dead leaves at Uea or Wallis Island.

It is closely allied to *Nanina (Gastrodonta) ensifera*, Mousson, a Samoan species, which is smaller, more depressed, the body-whorl being subangulated and more depressedly rounded. I name this singular species after my friend R. E. C. Stearns, Esq.

Genus *TROCHONANINA*, Mousson.1. *TROCHONANINA SAMOENSIS*.

*Nanina samoensis*, Mousson, Journ. de Conch. 1865, p. 165.

*Helix samoensis*, Pfeiffer, Mon. Hel. v. p. 70.

*Zonites (Conula) samoensis*, Mousson, Journ. de Conch. 1869, p. 331; 1870, p. 116; 1871, p. 10; Paetel, Cat. Conch. 1873, p. 86; Schmeltz, Cat. Mus. Godeff. v. p. 90.

*Helix clayi*, Liardet, Proc. Zool. Soc. 1876, p. 101, pl. 5. fig. 7.

*Microcystis samoensis*, Garrett, Journ. Phil. Acad. Nat. Sci. 1881, p. 384.

This minute species is generally diffused throughout the group. It is also common in the Tonga, Cook's, and Samoa Islands, and rare in the Marquesas. Under decaying vegetation.

It is a perforated, thin, depressed, turbinated, reddish or brownish horn-coloured species, with five strongly convex whorls, the last one angulated on the periphery.



2. *TROCHONANINA MICROCONUS.*

*Nanina microconus*, Mousson, Journ. de Conch. 1865, p. 192 ; (*Thalassia*) Paetel, Cat. Conch. p. 85.

*Helix microconus*, Pfeiffer, Mon. Hel. v. p. 94.

*Zonites (Conulus) microconus*, Mousson, Journ. de Conch. 1870, p. 117 ; Paetel, Cat. Conch. 1873, p. 86 ; Schmeltz, Cat. Mus. Godeff. v. p. 90.

*Helix pinnockii*, Liardet, Proc. Zool. Soc. 1876, p. 100, pl. 5. figs. 5, 5a.

Widely diffused over the group, and, like the preceding, this species lives beneath decaying vegetation. It occurs also in the Tonga and Samoa Islands.

A minute, perforated, conical, greyish horn-coloured species with  $5\frac{1}{2}$  spirally striated whorls, the last one acutely angulated and the base smooth.

3. *TROCHONANINA BARKASI.*

*Helix barkasi*, Liardet, Proc. Zool. Soc. 1876, p. 100, pl. 5. fig. 6.

This species, which is quite unknown to me, was found at Taviuni by Mr. Liardet. He describes it as follows:—

“Shell minute, trochiform, very minutely perforated, colour golden horny ; whorls  $5\frac{1}{2}$ , convex, roughly and irregularly striated, transversely ribbed, last whorl acutely carinated ; beneath slightly convex ; striæ radiating from the perforation ; aperture oblique and triangular.”

4. *TROCHONANINA CALCULOSA.*

*Helix calculosa*, Gould, Expl. Exp., Shells, p. 48, pl. 5. fig. 63 ; Pfeiffer, Mon. Hel. iii. p. 41.

*Zonites (Conulus) calculosus*, H. & A. Adams, Gen. Moll. ii. p. 116.

*Nanina calculosa*, Gray, Cat. Pulm. p. 126 ; Schmeltz, Cat. Mus. Godeff. v. p. 91.

*Trochonanina calculosa*, Garrett, Journ. Acad. Nat. Sci. Philad. 1884, p. 22.

A few specimens were found on the leaves of the bushes at Malolo Island. It is also common and widely diffused throughout the Society Islands. Numerous examples occurred to my notice at Dominique, one of the Marquesas Islands.

A minute, globose-pyramidal species, with an angulated body-whorl, reflexed columella, and punctiform perforation. Colour pale corneous ; whorls 5, convex.

Genus *ZONITES*, Montfort.1. *ZONITES VITIENSIS.*

*Zonites vitiensis*, Mousson, Journ. de Conch. 1865 p. 193 ;

(*Hyalina*) 1870, p. 115 ; Paetel, Cat. Conch, 1873, p. 86 ; Schmeltz, Cat. Mus. Godeff. v. p. 90,

*Helix vitiensis*, Pfeiffer, Mon. Hel. v. p. 146.

Common beneath dead leaves in forests near the sea-shore, and widely distributed through the group.

A small, umbilicated, depressed, thin, pellucid, pale horn-coloured species, about the size and shape of *Hyalina arborea*, Say, a North-American species.

## 2. ZONITES PLICOSTRIATUS.

*Zonites plicostriatus*, Mousson, Journ. de Conch. 1870, p. 116.

*Helix plicostriata*, Pfeiffer, Mon. Hel. vii. p. 197.

Inhabits the south coast of Vitu Levu and Kantavu (*Gräffe*).

A little smaller than the preceding species, from which it differs in having the body-whorl angulated, and the sculpture consists of fine rib-like striæ and spiral impressed lines.

## 3. ZONITES SCHMELTZIANA, sp. nov.

Shell umbilicated, depressed, orbicular, pellucid, shining, obscurely striated, pale corneous, sparsely speckled with white; spire depressedly convex; suture slightly impressed; whorls 5, nearly flat, regularly increasing, last one not deflected in front, depressedly rounded, upper portion depressed and angulated; base convexly rounded; umbilicus small; aperture oblique, orbicular-lunate; peristome straight, sharp, with remote margins; columella slightly reflected.

Major diam. 9, height 4 millim.

*Hab.* Malolo Island.

Common beneath decaying vegetation, in forests near the sea-shore.

Nearly twice the size of *Z. vitiensis*; this species has the spire more depressed, the whorls flatter, and may at once be recognized by its angulated body-whorl.

## Genus TROCHOMORPHA, Albers.

### 1. TROCHOMORPHA MERZIANOIDES.

*Helix (Trochomorpha) merzianoides*, Garrett, Proc. Phil. Acad. Nat. Sci. 1873, p. 237, pl. 3. fig. 72.

A rare species inhabiting Vanua Levu, where I found a few examples adhering to the trunks of trees.

Its large size (22 millim.), honey-yellow base, chestnut-brown upper surface, which is mottled with radiating lines and spots of a luteous-white colour, will at once distinguish it. The upper surface is coloured nearly the same as *T. merziana*, a Solomon-Island species; but the present species may be separated by the absence of the basal band, darker colour, the narrower last whorl, and its narrower aperture. *T. merziana* also differs in having the upper margin of the peristome inflected.

## 2. TROCHOMORPHA ABROCHROA, Crosse.

*Helix abrochroa*, Crosse, Journ. de Conch. 1868, p. 176; 1870, p. 101, pl. 1. fig. 2; Pfeiffer, Mon. Hel. vii. p. 207.

*Trochomorpha (Discus) abrochroa*, Mousson, Journ. de Conch. 1870, p. 123, var. *pseudoplanorbis*.

This species, which appears to be somewhat scarce, was found by me under dead wood in the mountain-forests on Kioa Island. Dr. Gräffe obtained it on Viti Levu.

Easily distinguished by its thin texture, uniform luteous horn-colour, depressed form, sharp crowded striæ, and the angle on the margin of the wide umbilicus. Diam. 12 millim.

## 3. TROCHOMORPHA LUDERSI.

*Helix ludersi*, Pfeiffer, Proc. Zool. Soc. 1855, p. 112; (*Videna*) Vers, p. 132; Mon. Hel. iv. p. 183.

*Trochomorpha (Discus) ludersi*, Mousson, Journ. de Conch. 1870, p. 122 (part.).

This fine species is abundant on the trunks of trees at Gnau (Angau) Island. I received a few specimens from a native at Ovalau, where Macgillivray obtained the type examples.

Its large size (19 millim.), light horn-colour, and, more particularly, the four narrow reddish-brown bands, two above and two in the base, will separate it from any other Vitian species.

## 4. TROCHOMORPHA TAVIUNIENSIS.

*Helix taviuniensis*, Garrett, Amer. Journ. Conch. 1872, p. 223 ("Tavinniensis" typ. err.); Schmeltz, Cat. Mus. Godeff. v. p. 95; Pfeiffer, Mon. Hel. vii. p. 574.

Found in numbers on the trunks of trees in damp forests on Taviuni.

A little smaller and more depressed than *T. ludersi*, with a single narrow chestnut-brown submarginal band, both above and beneath, on a tawny-yellow ground. Out of over 300 specimens one only was without the bands, and was more depressed and paler than the type. The bands are darker and wider than in the preceding species.

## 5. TROCHOMORPHA TUMULUS.

*Helix tumulus*, Gould, Proc. Bost. Soc. Nat. Hist. 1846, p. 175; Expl. Exp., Shells, p. 62, fig. 53; Pfeiffer, Mon. Hel. i. p. 85; Mousson, Journ. de Conch. 1865, p. 194, 1870, p. 120; Schmeltz, Cat. Mus. Godeff. v. p. 94.

*Nanina tumulus*, Gray, Cat. Pulm. p. 128; (*Trochomorpha*) Albers, Die Hel. 2nd ed. p. 60; (*Discus*) Paetel, Cat. Conch. p. 85.

This species, which is unknown to me, inhabits Viti Levu. Schmeltz cites Samoa as one of its habitats, which is probably a mistake, as Prof. Mousson does not mention it in his paper on the Samoan land-shells.

It is described as a small (14 millim.), solid, yellowish, pyramidal

shell, with a flattened base, 6-7 whorls, the last one obtuse and angulated at the periphery.

#### 6. TROCHOMORPHA PLANOCONUS.

*Trochomorpha planoconus*, Mousson, MS., Museum Godeffroy, 1885.

Shell umbilicated, trochiform, rather solid, scarcely shining, rugosely striated; striæ rude, irregular, oblique; colour chestnut-black, varigated with fulvous, gradually passing into dark chestnut-brown; apex obtuse; base dark honey-yellow, with a darker line near the keel; spire elevated, conoid, with planulate outlines; suture linear, narrowly margined; whorls 7, slightly convex, slowly and regularly increasing, last one acutely carinated; keel compressed and rugose; umbilicus small, deep; aperture diagonal, subrhomboidal-lynniform; peristome above the keel acute and gently arched, below the keel thickened and concave.

Major diam. 19, height 10 millim.

Ono Island.

Two examples received from the Museum Godeffroy. As compared with *T. merzianoides*, it is much more conical, darker coloured, smaller, and the umbilicus is not so large.

#### 7. TROCHOMORPHA FESSONIA.

*Helix (Trochomorpha) fessonia*, Angas, Proc. Zool. Soc. 1869, p. 626, pl. 48. fig. 7; Brazier, Proc. Zool. Soc. 1871, p. 322 (part.); Schmeltz, Cat. Mus. Godeff. v. p. 94; Pfeiffer, Mon. Hel. vii. p. 201.

*Trochomorpha (Discus) transarata*, var. *depresso-striata*, Mousson, Journ. de Conch. 1870, p. 121.

I received several examples of this species from Kantavu Island, where Mr. Brazier obtained the type specimens. On trees. Dr. Gräffe found it (rare) in the interior of Viti Levu.

Its most essential characters are its rather small size (12 millim.), depressed trochiform shape, crowded irregular plicate striæ, brownish colour, and pale markings. The spire is convexly-conical; whorls 6, with narrow white margins. Base rather flat, corneous, with a reddish-brown band next to the acute white keel. Umbilicus small.

#### 8. TROCHOMORPHA TRANSARATA.

*Helix transarata*, Mousson, Journ. de Conch. 1865, p. 194; Pfeiffer, Mon. Hel. v. p. 183; Schmeltz, Cat. Mus. Godeff. iv. p. 73.

*Trochomorpha (Discus) transarata*, Mousson, Journ. de Conch. 1870, p. 121, pl. 7. fig. 1 (excl. var.).

*Helix fessonia (Trochomorpha)*, Brazier, Proc. Zool. Soc. 1871, p. 322 (part.).

When Prof. Mousson first described this species, he had only a single imperfect young example before him, which Dr. Gräffe



found at Lomaloma, Vanua Balavo. Gräffe subsequently discovered some specimens of *Trochomorpha* in the interior of Viti Levu, which Mousson (in Journ. de Conch. 1870, p. 122) referred to his *T. transarata*, adding additional characters and giving a good figure of the same. On the same page he describes the var. *depresso-striata*, which latter is probably distinct and = *T. fessonia*, Angas.

Unfortunately I lost all my Kantavu specimens of the latter species when shipwrecked, and have only a single dead example of *T. transarata* from Lomaloma, which exactly coincides with Mousson's original description, and agrees with his figure of a Viti Levu shell.

Mr. Brazier (in P. Z. S. 1871, p. 322) adds *T. transarata* to the synonymy of *fessonia*. Schmeltz (in Cat. Mus. Godeff. v. p. 94, sp. 5939) quotes Mousson's var. *T. depresso-striata* as = *fessonia*, and, judging from the Museum numbers, he does not include the type, which is no. 5235 (see Cat. no. iv. p. 73), in the synonymy.

Its small size, depressed conical form, rough irregular plicate striæ, brownish horn-colour with interrupted radiating pale stripes, elevated spire, slightly convex base, and small umbilicus are its most prominent characters.

#### 9. TROCHOMORPHA ACCURATA.

*Trochomorpha (Discus) accurata*, Mousson, Journ. de Conch. 1870, p. 120, pl. 7. fig. 2.

*Nanina (Microcystis) accurata*, Paetel, Cat. Conch. p. 84.

*Helix accurata*, Pfeiffer, Mon. Hel. vii. p. 290.

A very rare species, found by Dr. Gräffe in rocks at Veria, in the interior of Viti Levu.

It has the spire more elevated than *T. transarata*, a greenish-violet colour, the striæ strong and irregular, the umbilicus small; whorls 7, the last one acutely carinated with a compressed, white keel. Major diam. 14, height 12 millim.

#### 10. TROCHOMORPHA CORALLINA.

*Trochomorpha (Discus) ludersi*, var. *corallina*, Mousson, Journ. de Conch. 1870, p. 123.

I found a few examples of this species on elevated coralline reefs in forests on Vanua Balavo, and took a large number in similar stations on Mango Island. Dr. Gräffe found it on coral-rocks on Malatta and Tutuna, the latter one of the northern islands of the Tonga group.

It may be described as follows:—

Shell umbilicated, sublenticular, solid, finely and obliquely striated, fulvous horn-colour, rarely whitish, with or without a marginal dorsal and basal dark fuscous band; spire convexly conoid, obtuse; suture depressedly margined above; whorls  $5\frac{1}{2}$ , slightly convex, slowly and regularly increasing, the last one not descending in front, acutely carinated; base convex; umbilicus small, about one seventh the greater diameter of the shell; aperture diagonal, subrhomboid-

lunate ; peristome simple, straight above, acute, at the base thickened with callus.

Major diam. 15, height 6-7 millim.

As compared with *T. ludersi* it is smaller, differs in the ground-colour, the umbilicus is not so large, and the bands are wider and only two in number.

#### 11. TROCHOMORPHA SUBTROCHIFORMIS.

*Helix trochiformis*, Gould (not of Férussac), Expl. Exp., Shells, p. 61.

*Helix eurydice*, Mousson (not of Gould), Journ. de Conch. 1865, p. 170.

*Trochomorpha subtrochiformis*, Mousson, Journ. de Conch. 1869, p. 335, pl. 4. fig. 6 ; 1870, var. *albo-striata*, p. 122 ; Pease, Proc. Zool. Soc. 1871, p. 474.

*Helix subtrochiformis*, Schmeltz, Cat. Mus. Godeff. p. 95 ; Pfeiffer, Mon. Hel. vii. p. 289.

Mousson's var. *albo-striata* inhabits Kanathia, one of the Windward Islands, and the type is a Samoan species. The variety, which is unknown to me, is described as follows:—

“*Spira fusco-nigrescens, strigis transversis, albis, imperfectis, eleganter ornata, ad basin fulvescens, cum zona peripherica fusca.*” (Mousson.)

It is probably distinct from the Samoan type.

#### 12. TROCHOMORPHA THEMIS, sp. nov.

*Trochomorpha (Discus) ludersi*, Mousson (not of Pfeiffer), Journ. de Conch. 1870, p. 122 (part.).

I obtained numerous specimens of this species at Vanua Balavo, where they were found adhering to the trunks of trees. It is also recorded from Oneata Island.

Shell with a narrow umbilicus, solid, sublenticular, not shining ; striæ very fine, oblique and crowded ; whitish horn-colour, with a single dorsal and basal submarginal chestnut-brown line ; spire depressedly conoid, obtuse ; suture with a depressed white margin ; whorls  $5\frac{1}{2}$ , depressedly convex, slowly and regularly increasing, last one not deflected in front, acutely and compressedly carinated, keel white ; base convex ; umbilicus about one eighth the major diameter of the shell ; aperture and peristome the same as in *T. corallina*.

Major diam. 14, height 6 millim.

As compared with *T. ludersi* it is smaller, paler, has only half so many linear bands, striæ finer and the umbilicus much smaller. *T. corallina* is of a fulvous colour (very rarely whitish), the bands are wider and paler and the suture has not got the white margin ; it is also a little larger and smoother, and lives in a different station.

#### 13. TROCHOMORPHA KANTAVUENSIS, sp. nov.

Shell widely umbilicated, thin, fragile, pellucid, depressed, lenticular, smooth, shining ; incremental striæ fine, crowded, oblique ;

luteous-corneous, the periphery margined above and beneath with a reddish-chestnut line, the upper one following the whorls of the spire; suture with a depressed, narrow marginal line; whorls  $6\frac{1}{2}$ , slightly convex, rather rapidly increasing, last one not descending in front, acute and compressedly carinated, keel whitish; base more polished than above, convex; aperture very oblique, depressed, sub-rhomboid-lunate; peristome thin, straight above, margins converging, basal portion slightly thickened and gently arched.

Major diam. 20, height 7 millim.

I received several hundred examples of this very distinct species from a missionary who collected them in Kantavu Island. He gave no information in regard to its station.

Specimens sent to the Godeffroy Museum in Hamburg were referred to *T. swainsonii*, a Society-Island species; and examples sent to an English correspondent were confounded with *T. metcalfei*, Pfeiffer, a Philippine species. It is probably the *Helix* (*Videna*) *planorbis*, in "Dr. James C. Cox's Exchange List," which he accredits to Kantavu. The *T. planorbis* of Lesson was collected by that naturalist in New Guinea, and differs from our shell in being smaller, mottled with olivaceous, and in having only 5 whorls. A careful comparison with the description of *T. metcalfei* has convinced me that it cannot be the same as the Kantavu shell. *T. swainsonii* is smaller, thicker, rougher, much more variable, and the positions of the lineations are different.

Its large size, depressed form, fragile texture, luteous horn-colour with the chestnut-brown marginal lines, and large umbilicus will readily separate it from any other Vitian species.

#### GENUS PATULA, Held.

##### 1. PATULA INERMIS.

*Patula inermis*, Mousson, Journ. de Conch. 1870, p. 118, pl. 7. fig. 7.

*Helix inermis*, Pfeiffer, Mon. Hel. vii. p. 167; (*Patula*) Paetel, Cat. Conch. p. 91.

Collected by Dr. Gräffe on Vanua Balavo. Beneath decaying vegetation.

A small, widely umbilicated, depressed orbicular, rufous horn-coloured species, with fine, oblique, costulate striæ and 4 slightly convex whorls. Diameter a trifle more than 2 millim.

##### 2. PATULA ADPOSITA.

*Patula adposita*, Mousson, Journ. de Conch. 1870, p. 119, pl. 7. fig. 8.

*Helix adposita*, Pfeiffer, Mon. Hel. vii. p. 87; (*Patula*) Paetel, Cat. Conch. p. 87.

Discovered by Dr. Gräffe on Oneata Island.

A little larger and paler than the preceding species, and the umbilicus is smaller, and the acute plicate striæ are not so crowded.

## 3. PATULA PRINCEI.

*Helix princei*, Liardet, Proc. Zool. Soc. 1876, p. 100, pl. 5. figs. 4, 4a.

This species was found at Taviuni by Mr. Liardet.

"Shell very small, depressed, with a wide and perspective umbilicus; colour dark brown; whorls 3, prominently costulated; suture deeply impressed; aperture round." (*Liardet.*)

## 4. PATULA IRREGULARIS, sp. nov.

*Pityis irregularis*, Mousson, Mus. Godeff. 1885.

Shell small, umbilicated, orbicular, depressed, thin, translucent, greyish white under a bluish horn-coloured epidermis; sculpture consisting of crowded, waved, raised striæ, with larger ones irregularly intermixed; spire convex, apex flattened; suture canaliculate; whorls 4, convex, slowly and regularly increasing, slightly turgid next the suture, last one rounded, slightly depressed above the periphery; base convex; umbilicus deep, about one fourth the major diameter of the shell; aperture slightly oblique, irregularly rounded; peristome thin.

Major diam. 3, height 2 millim.

Common at Viti Levu. I received a number of specimens of this species from the Museum Godeffroy, Hamburg.

A small uncoloured species closely allied to *P. rudis*, a Cook's Island species. The irregular striæ will separate it from the other Vitian species.

## Genus PITYS, Beck.

## 1. PITYS SUBDÆDALEA.

*Patula (Endodonta) subdædalea*, Mousson, Journ. de Conch. 1870, p. 117, pl. 7. fig. 6.

*Helix subdædalea*, Pfeiffer, Mon. Hel. vii. p. 258; (*Patula*) Paetel, Cat. Conch. p. 95.

Found by Dr. Gräffe in Mango Island. Like all the South-Sea species, it is found beneath decaying leaves and under rotten wood.

It is a little larger than *Patula adposita*, and of a pale horn-colour, with a wide umbilicus, planulate spire, the striæ costulate, and  $5\frac{1}{2}$  whorls. The parietal region is garnished with three spiral laminæ, and there are four on the palate.

## Genus PLACOSTYLUS, Beck.

## 1. PLACOSTYLUS MALLEATUS.

*Bulimus malleatus*, Jay, Revue Zool. 1842, p. 80; Guérin, Mag. Zool. 1843, p. 61; Philippi, Abbild. ii. 9. p. 10, *Bul.* pl. 3. fig. 4; Pfeiffer, Mon. Hel. ii. p. 55; (*Charis*) id. Vers, p. 152; Reeve, Conch. Icon. pl. 29. fig. 174; Deshayes, in Fér. p. 47, pl. 144. figs. 11, 12; Gould, Expl. Exp., Shells, p. 81, fig. 78; (*Charis*) Albers, Die Hel. 1st ed. p. 152, 2nd, ed. p. 196; (*Charis*) H. & A. Adams, Gen. Moll. ii. p. 147; (*Charis*) Chenu, Mon. Conch. i. p. 436, fig. 3201;



Crosse, Journ. de Conch. 1864, p. 136, 1875, p. 20; (*Charis*) Paetel, Cat. Conch. 1873, p. 98; Garrett, Amer. Journ. Conch. 1872, p. 231.

*Charis malleatus*, Frauenfeld, Verh. zool.-bot. Ges. Wien, 1869, p. 874.

*Placostylus (Charis) malleatus*, Mousson, Journ. de Conch. 1870, p. 125; Schmeltz, Cat. Mus. Godeff. v. p. 92.

This arboreal species is restricted to Viti Levu and Ovalau Islands.

Its large size (55 millim.), white colour, olivaceous-brown maculations, malleated surface, oblong aperture, broadly expanded white lip will distinguish it. An immaculate variety is not infrequent.

## 2. PLACOSTYLUS FULGURATUS.

*Bulimus fulguratus*, Jay, Revue Zool. 1842, p. 80; Guérin, Mag. Zool. 1843, p. 62; Philippi, Abbild. ii. 9. p. 10, *Bul.* pl. 3. fig. 2; Pfeiffer, Mon. Hel. ii. p. 55; (*Charis*) id. Vers, p. 152; Reeve, Conch. Icon. pl. 29. fig. 175; Gould, Expl. Exp., Shells, p. 80, fig. 77; (*Charis*) Albers, Die Hel. 1st ed. p. 152, 2nd ed. p. 196; (*Charis*) H. & A. Adams, Gen. Moll. ii. p. 147; Mousson, Journ. de Conch. 1865, p. 195; Crosse, Journ. de Conch. 1864, p. 137, 1875, p. 17; (*Charis*) Paetel, Cat. Conch. 1873, p. 98; Garrett, Amer. Journ. Conch. 1872, p. 231, pl. 18. fig. 1.

*Placostylus (Charis) fulguratus*, Mousson, Journ. de Conch. 1870, p. 125; Schmeltz, Cat. Mus. Godeff. v. p. 92

*Charis fulguratus*, Frauenfeld, Verh. zool.-bot. Ges. Wien, 1869, p. 874.

*Otostomus fulguratus (Charis)*, Semper, Phil. Landmoll. iii. p. 158, pl. 17. fig. 10.

*Bulimus eximius*, Reeve, Conch. Syst. ii. p. 173.

*Plakocheilus gracilis*, Broderip, Proc. Zool. Soc. 1840, p. 182.

This, like the preceding species, is confined to the islands of Viti Levu and Ovalau, where it occurs on the trunks and foliage of trees.

A rather solid, oblong, olive-yellow species, with longitudinal, irregular, more or less interrupted, waved olive-brown stripes. Whorls 5, convex, last one with fine crowded longitudinal striæ, and obliquely transverse anastomosing sulcations. Spire decorticated, whitish or reddish. Aperture obauriform, white or light fulvous, and the lip white and widely expanded. Length 45-50 millim.

## 3. PLACOSTYLUS ELOBATUS.

*Bulimus elobatus*, Gould, Proc. Bost. Soc. Nat. Hist. 1846, p. 190; Expl. Exp., Shells, p. 72, fig. 84; Pfeiffer, Mon. Hel. ii. p. 184; (*Charis*) id. Vers, p. 152; (*Charis*) Albers, Die Hel. 2nd ed. p. 196; Crosse, Journ. de Conch. 1864, p. 140 (excl. variety); (*Placostylus*) Paetel, Cat. Conch. 1873, p. 98; Garrett, Amer. Journ. Conch. 1872, p. 232, pl. 18. fig. 2; (*Euplacostylus*) Crosse, Journ. de Conch. 1875, p. 13.

*Placostylus (Charis) elobatus*, Mousson, Journ. de Conch. 1870, p. 124; Schmeltz, Cat. Mus. Godeff. v. p. 93.

*Otostomus (Placostylus) elobatus*, Semper, Phil. Landmoll. iii. p. 157, pl. 15. fig. 5.

*Bulimus colubrinus*, Pfeiffer, Proc. Zool. Soc. 1860, p. 138, pl. 51. fig. 4; Malak. Blätt. 1861, p. 13; Mon. Hel. vi. p. 29; Crosse, Journ. de Conch. 1864, p. 139.

This species is restricted to the island of Vanua Levu, where it occurs beneath decaying vegetation. Examples inhabiting the interior of the island are larger and much finer than those found in the forests near the sea-shore.

My largest specimens taken in the former location are 66 millim. long, and my smallest (adults) from near the sea-shore are only 46 in length. The shape varies from oblong-ovate to elongate-ovate. It is solid, white or ruddy beneath a fulvous epidermis, and ornamented with longitudinal dark green waved or zigzagged stripes, which are more or less interrupted. The apical whorls are usually reddish. The aperture and lips are usually orange-red, and the throat frequently whitish. The last two whorls are minutely corrugated. A rare variety occurs with the lips and aperture wholly white.

#### 4. PLACOSTYLUS MOROSUS.

*Bulimus morosus*, Gould, Proc. Bost. Soc. Nat. Hist. 1846, p. 190; Expl. Exp., Shells, p. 72, fig. 82; Pfeiffer, Mon. Hel. ii. p. 56; (*Charis*) id. Vers, p. 152; (*Charis*) Albers, Die Hel. 2nd ed. p. 196; (*Charis*) Paetel, Cat. Conch. 1873, p. 98; Garrett, Amer. Journ. Conch. 1872, p. 232; (*Placostylus*) Crosse, Journ. de Conch. 1875, p. 20, pl. 8. fig. 1; Kobelt, Jahrb. malak. Ges. 1875, p. 225, pl. 7. figs. 7-8.

*Placostylus (Charis) morosus*, Mousson, Journ. de Conch. 1870, p. 125; Schmeltz, Cat. Mus. Godeff. v. p. 93.

*Bulimus elobatus*, var. *minor*, Crosse, Journ. de Conch. 1864, p. 140.

This very distinct arboreal species has a wider range than any other species inhabiting the group. It is distributed throughout all parts of Vanua Levu, where I collected numerous examples. I found it also on Rambi, Koro, Taviuni, Gomea, Lanthala, and Prof. Mousson, on the authority of Dr. Gräffe, records it from Viti Levu.

It is a rather thin, oblong-ovate, uniform white, decorticated shell, with a large aperture and widely reflected peristome. The rough surface is not so conspicuously malleated as *P. malleatus*. There exists a rare abbreviated variety on the west end of Vanua Levu, which exhibits a few olivaceous markings similar to those on the latter species.

#### 5. PLACOSTYLUS SEEMANNI.

*Bulimus seemanni*, Dohrn, Proc. Zool. Soc. 1861, p. 207, pl. 26. fig. 6; Crosse, Journ. de Conch. 1864, p. 123; Pfeiffer, Mon. Hel. vi. p. 13; Novit. Conch. iii. p. 474, pl. 102. fig. 18; Garrett, Amer. Journ. Conch. 1872, p. 232; (*Eumecostylus*) Paetel, Cat. Conch. 1873, p. 99; Crosse, Journ. de Conch. 1875, p. 10.

*Placostylus (Charis) seemanni*, Mousson, Journ. de Conch. 1870,

p. 126; Schmeltz, Cat. Mus. Godeff. v. p. 92; Canefri, Malac. Viaggio Mag. p. 85.

*Otostomus (Placostylus) seemanni*, Semper, Phil. Landmoll. iii. p. 157, pl. 17. fig. 9.

This fine large ground-species is confined to Kandavu Island, where it appears to be abundant.

Though subject to considerable variation in size and shape, it may, however, be distinguished by its rather slender form, whitish horn-colour beneath a yellowish or olive-brown epidermis, which is sometimes ornamented with waved or zigzagged stripes. The surface, though coarsely striated with lines of growth, is seldom marked by transverse corrugations. The auriculate-shaped aperture is narrow, white, though sometimes tinted with fulvous, and the white lip is considerably expanded and slightly reflected and frequently contracted above. Length from 52-77 millim. Like all the ground-species, it is very frequently decorticated.

#### 6. PLACOSTYLUS KANTAVUENSIS.

*Bulimus kantavuensis*, Crosse, Journ. de Conch. 1870, p. 250; 1871, p. 105, pl. 5. fig. 3; 1875, p. 10; Pfeiffer, Mon. Hel. viii. p. 29.

This is also a terrestrial species, and inhabits Kandavu Island, where it was discovered by Mr. Brazier.

It is described as a rather solid, cylindrically-fusiform species, with longitudinal rugose striæ and obsolete submalleations. Colour ruddy white, with reddish apical whorls. The epidermis is olive-yellow, with longitudinal waved whitish stripes. The last whorl is subcylindrical, compressed on the middle, and the auriform aperture and the widely expanded peristome are whitish. Length 43 millim. I have never seen an example of this species.

#### 7. PLACOSTYLUS KOROENSIS.

*Bulimus koroensis*, Garrett, Amer. Journ. Conch. 1872, p. 236, pl. 18. fig. 9; Pfeiffer, Mon. Hel. viii. p. 29; (*Placostylus*) Crosse, Journ. de Conch. 1875, p. 9, pl. 1. fig. 5; Schmeltz, Journ. des Mus. Godeff. Heft xii. 1876, p. 161.

*Placostylus koroensis*, Schmeltz, Cat. Mus. Godeff. v. p. 92.

Occurs in great profusion on the ground in the central valleys of Koro Island, where it is peculiar.

It is very closely allied to the preceding species, which it resembles in shape and sculpture. Colour corneous or tawny yellow, with a white or luteous aperture and rather widely expanded white peristome. Length 53 millim. It is very frequently distorted and very seldom exhibits traces of a fulvous epidermis, which is disposed in irregular longitudinal strips and patches. Examples sent to Mr. Crosse were, by that learned conchologist, regarded as distinct from his *B. kantavuensis*.

#### 8. PLACOSTYLUS HOYTI.

*Bulimus hoyti*, Garrett, Amer. Journ. Conch. 1872, p. 234, pl. 18.

fig. 7; Pfeiffer, Mon. Hel. viii. p. 30; (*Placostylus*) Crosse, Journ. de Conch. 1875, p. 17, pl. 1. fig. 8.

*Placostylus hoyti*, Schmeltz, Cat. Mus. Godeff. vi. p. 81.

This beautiful terrestrial species is confined to that portion of Vanua Levu situated to the southward of Natawa Bay.

Though closely related to *P. elobatus* in colour, markings, and sculpture, it is, however, readily distinguished by its abbreviated form, turgid body-whorl, wider aperture, expanded and reflected lip. Length 44 to 55 millim.

#### 9. *PLACOSTYLUS RUGATUS*.

*Bulimus rugatus*, Garrett, Amer. Journ. Conch. 1872, p. 234, pl. 18. fig. 1; Pfeiffer, Mon. Hel. viii. p. 35; (*Placostylus*) Crosse, Journ. de Conch. 1875, p. 18.

*Placostylus rugatus*, Schmeltz, Cat. Mus. Godeff. vi. p. 81.

Var. *CRASSILABRIS*, Garrett.

*Bulimus crassilabrum*, Garrett, Amer. Journ. Conch. 1872, p. 233, pl. 18. fig. 5; Pfeiffer, Mon. Hel. viii. p. 35; (*Placostylus*) Crosse, Journ. de Conch. 1875, p. 18.

*Placostylus crassilabrum*, Schmeltz, Cat. Mus. Godeff. v. p. 93.

This arboreal species is restricted to Vanua Levu, where it is widely distributed over the island.

It is a rather thin, oblong-ovate species, of a whitish colour beneath an olive-yellow epidermis, and ornamented with small olive-green blotches, which are sometimes zigzagged. Length 43 millim. The transverse rugosities do not differ from those observed on *P. fulguratus*. As compared with that species it is more abbreviated, the outer lip more arched and more effuse, and the aperture is more oblique. The base is also not so much produced.

The variety *crassilabris* is more solid, and the peristome and parietal callus are much thicker than in the typical *P. rugatus*. This variety, of which I obtained about 200 examples, was gathered in the interior at a point about the middle of the length of the island.

#### 10. *PLACOSTYLUS OCHROSTOMUS*.

*Bulimus ochrostoma*, Garrett, Amer. Journ. Conch. 1872, p. 232, pl. 18. fig. 3; Pfeiffer, Mon. Hel. viii. p. 36; (*Placostylus*) Crosse, Journ. de Conch. 1875, p. 19.

*Placostylus ochrostoma*, Schmeltz, Cat. Mus. Godeff. vi. p. 81.

*Bulimus rambiensis*, Garrett, Amer. Journ. Conch. 1872, p. 233, pl. 18. fig. 4; Pfeiffer, Mon. Hel. viii. p. 36; (*Placostylus*) Crosse, Journ. de Conch. 1875, p. 19.

*Placostylus rambiensis*, Schmeltz, Cat. Mus. Godeff. vi. p. 81.

Not uncommon on foliage at Taviuni and Rambi, rare on Gomea, and I obtained two examples on that part of Vanua Levu opposite to Rambi Island.

It is the smallest species, so far as known, inhabiting the group. It is rather variable in size, ranging from 28 to 40 millim. in length, and its shape varies from ovate to oblong-ovate. The texture is



rather thin, the sculpture the same as on *P. rugosus*, and the colour ruddy corneous or whitish, often with a reddish spire. Though very frequently wholly decorticated, the epidermis, when present, is very thin, light fulvous, and usually beautifully mottled with green, which is occasionally disposed in zigzag pattern. The aperture and lips are more or less intense saffron-yellow, paler in the throat. The columellar fold is not so conspicuous, and is more vertical than in the preceding species. The peristome, though usually simple, is often slightly expanded, particularly so in the Rambi shells, some of which have the lip slightly reflected.

#### 11. *PLACOSTYLUS GNAUENSIS*.

*Bulimus gnauensis*, Garrett, Amer. Journ. Conch. 1872, p. 235, pl. 18. fig. 8 (in err. *guanensis*); Pfeiffer, Mon. Hel. viii. p. 36; (*Placostylus*) Crosse, Journ. de Conch. 1875, p. 18.

*Placostylus gnauensis*, Schmeltz, Cat. Mus. Godeff. vi. p. 81.

This graceful species is common and peculiar to Gnau Island, where it lives on trees and shrubs.

It may be recognized by its rather thin texture, oblong-ovate or elongate-ovate form, whitish, yellowish, or reddish horn-colour, ornamented with longitudinal undulating olive-green stripes, which are frequently shaded off with white. The surface is rugose, with small transverse corrugations. The aperture is tawny yellow or reddish, rarely white, and the lips, which are but slightly expanded, are more intensely coloured than is the throat. Length 45 millim.

#### 12. *PLACOSTYLUS GRAEFFEI*.

*Placostylus elobatus*, Mousson (not of Gould), Journ. de Conch. 1870, p. 124.

*Placostylus moussonii*, "Gräffe," Schmeltz, Cat. Mus. Godeff. v. p. 93.

*Bulimus*, sp., Garrett, Amer. Journ. Conch. 1872, p. 232.

*Bulimus moussonii*, Crosse (not of Pfeiffer), Journ. de Conch. 1875, p. 11.

*Bulimus græffei*, Crosse, *l. c.* p. 13; Pfeiffer, Mon. Hel. viii. p. 30.

This ground-species appears to be restricted to the central portion of Viti Levu, where it was discovered by Dr. Gräffe. I am indebted to the latter gentleman for two examples of this species, which is about the same size and shape as *P. elobatus*, but is a smoother shell, and the colour of my two specimens is olivaceous without any markings. The aperture is whitish, and the columellar fold is more horizontal than in the latter species.

#### 13. *PLACOSTYLUS VITIENSIS*, sp. nov.

*Bulimus vitiensis*, Garrett, MS. (coll. Garrett).

*Placostylus vitiensis*, "Garr.," Schmeltz, Cat. Mus. Godeff. vi. p. 81.

Shell umbilicated, oblong-ovate, rather solid, slightly shining; rosy flesh-colour beneath a thin translucent epidermis, which is decorated with longitudinal olive-green zigzag stripes; surface of

the last two whorls with small longitudinal striæ and small transverse corrugations; spire obtuse, decorticated, minutely punctured, two thirds the length of the shell; whorls 5, moderately convex, the last one attenuated at the base; aperture slightly oblique, oblong, auriform, light fulvous; peristome white, rather widely expanded and somewhat reflected; columellar lip dilated, and the fold oblique and prominent.

Length 41, diam. 17 millim.

I obtained 20 living examples of this species, which were collected by the natives at Na Viti Levu Bay, on the N.E. coast of Viti Levu. It is smaller and a more graceful species than *P. fulguratus*, and the base is more contracted.

### Genus STENOGYRA, Shuttleworth.

#### 1. STENOGYRA TUCKERI.

*Bulinus tuckeri*, Pfeiffer, Proc. Zool. Soc. 1846, p. 30; Mon. Hel. ii. p. 158; (*Opeas*) Vers, p. 156; Reeve, Conch. Icon. pl. 68, sp. 481; (*Opeas*) Cox, Mon. Austr. Land-Shells, p. 69, pl. 13. fig. 9; Brazier, Quart. Journ. Conch. i. p. 272.

*Stenogyra tuckeri*, Albers, Die Hel. ed. 2, p. 265; (*Opeas*) Frauenfeld, Verh. zool.-bot. Wien, xix. p. 873; Pease, Proc. Zool. Soc. 1871, p. 473; Garrett, Journ. Phil. Acad. Nat. Sci. 1881, p. 393; 1885, p. 43.

*Bulinus junceus*, Gould, Proc. Bost. Soc. Nat. Hist. 1846, p. 191; Expl. Exp., Shells, p. 76, fig. 87; Pfeiffer, Mon. Hel. ii. p. 220.

*Stenogyra juncea*, Mousson, Journ. de Conch. 1869, p. 340; Pease, Journ. de Conch. 1871, p. 93; Proc. Zool. Soc. 1871, p. 473; (*Opeas*) Paetel, Cat. Conch. p. 104; Schmeltz, Cat. Mus. Godeff. v. p. 90; Garrett, Proc. Phil. Acad. Nat. Sci. 1879, p. 19.

*Bulinus walli*, Cox, Cat. Austr. Land-Shells, p. 24; Pfeiffer, Mon. Hel. vi. p. 99.

*Stenogyra upolensis*, Mousson, Journ. de Conch. 1865, p. 175; (*Obeliscus*) Paetel, Cat. Conch. 1873, p. 104; Schmeltz, Cat. Mus. Godeff. iv. p. 29.

*Bulinus upolensis*, Pfeiffer, Mon. Hel. vi. p. 100.

*Bulinus panayensis*, Pfeiffer, Proc. Zool. Soc. 1846, p. 33; Mon. Hel. ii. p. 156; (*Opeas*) Vers, p. 156; Reeve, Conch. Icon. pl. 14. no. 76; (*Opeas*) Albers, Die Hel. p. 175.

*Subulina panayensis*, H. & A. Adams, Gen. Moll. ii. p. 111; Semper, Phil. Landmoll. ii. p. 137, pl. 8. fig. 15.

*Stenogyra panayensis*, (*Opeas*) Albers, Die Hel. ed. 2, p. 265; Martens, Ostas. Zool. ii. p. 83 (Siam), p. 376, pl. 22. fig. 8; (*Opeas*) Paetel, Cat. Conch. p. 104.

*Bulinus diaphanus*, Gassies (not of Pfeiffer), Journ. de Conch. 1859, p. 70.

*Bulinus souverbianus*, Gassies, Faune Nouv. Caléd. p. 52, pl. 2. fig. 5; Pfeiffer, Mon. Hel. vi. p. 98.

*Bulinus artensis*, Gassies, Journ. de Conch. 1866, p. 50; Pfeiffer, Mon. Hel. vi. p. 98.

*Stenogyra novemgyrata*, Mousson, Journ. de Conch. 1870, p. 126 ; (*Subulina*) Paetel, Cat. Conch. 1873, p. 104 ; Schmeltz, Cat. Mus. Godeff. v. p. 90.

*Bulimus novemgyratus*, Pfeiffer, Mon. Hel. viii. p. 138.

*Stenogyra gyrate*, Mousson, MS. in Mus. Godeffroy, 1885.

This species, which is distributed over a larger geographical area than any other species of land-shell, is diffused throughout all parts of Polynesia, the low coral-islands as well as the more elevated groups, and ranges throughout Melanesia, Micronesia, Australasia, the Moluccas, Philippines, Guam, Ceylon, Siam, Cochin China, China, and probably extends its range as far as the east coast of Africa.

Since the publication of my paper on the Society-Island land-shells I have received from Mr. E. L. Layard examples of *Bulimus souverbionus* and *B. artensis*, both of which are identical with Polynesian specimens of *S. tuckeri*.

Through the kindness of Dr. Hungerford, of Hong Kong, I have been enabled to compare Pfeiffer's *Bulimus panayensis* with *B. tuckeri*, and cannot detect a single character to separate the two species.

I am strongly inclined to believe that the West-Indian *Stenogyra subula*, Pfr., is a form of the Polynesian *S. tuckeri*, and was accidentally imported with the Tahitian bread-fruit plants nearly a hundred years ago. MM. Crosse and Fischer (Journ. de Conch. 1863, p. 361) record the West-Indian "*Bulimus subula*" from Cochin China, and give a good figure of the same, which latter is, undoubtedly the ubiquitous *S. tuckeri*. I reproduce their remarks as follows:—

"Cette espèce provient de Saigon et Fuyen-Moth, où elle a été recueillie par Monsieur Michau, dans les fossés, dans la terre et sous les herbes. Il peut sembler très-extraordinaire de retrouver en Cochinchine une espèce des Antilles, qui n'a guère été signalée jusqu'ici qu'à Cuba, à la Jamaïque et à Saint-Thomas. Pour ne conserver aucun doute à son égard, nous avons cru devoir soumettre un individu authentique à l'examen de M. Pfeiffer, qui a créé l'espèce. Il faut donc accepter le fait, qui peut-être, au reste, seulement un accident d'acclimatation : la petitesse et la légèreté de la coquille en question rendent cette supposition vraisemblable."

I have lately received from Dr. Hungerford several examples of *Stenogyra*, labelled "*Opeas subula*, Pfr., Hong Kong," which do not differ from the Polynesian *S. tuckeri*. I have several specimens of *Stenogyra* received from Dr. Gibbons, who collected them in Algoa, South Africa. They were labelled "*Stenogyra turiformis*, Krauss," but are much smaller than the latter species, and the identification is questionable. They are of the same size, and coincide very nearly with *S. tuckeri*. *Bulimus johannius*, Morelet, from the Comoro Islands, can scarcely be distinguished from some forms of the latter species.

This species, which is chiefly confined to the lowlands near the sea-shore, is found beneath decaying vegetation and under loose stones.

They vary in size, number of whorls, development of striae,

convexity of the whorls, more or less open columellar chink, and in texture vary from thin pellucid to thick opaque cretaceous without lustre. The colour is whitish, pale horn-colour, sometimes with a light greenish tint. Animal light yellow. Length 8 to 13 millim.

#### Genus PARTULA, Férussac.

##### 1. PARTULA LIRATA.

*Partula lirata*, Mousson, Journ. de Conch. 1865, p. 136. pl. 14. fig. 4; 1870, p. 126; Heynemaun, Malak. Blätt. 1867, pl. i. fig. 1 (dentition); Pfeiffer, Mon. Hel. vi. p. 158; Paetel, Cat. Conch. 1873, p. 104; Schmeltz, Cat. Mus. Godeff. v. p. 91; Hartman, Cat. *Partula*, p. 14; Obs. gen. *Partula*, Bull. Mus. Comp. Zool. ix. p. 183.

This singular *Partula* lives on foliage near the sea-shore. I obtained several hundred examples on Lanthala, and a few at Vanua, Balavo, and Taviuni. Dr. Gräffe found it on Kanathia and Oneata.

It is, so far as known, the only species of *Partula* with elevated spiral liræ. The type is pale cinereous, with the expanded lip and aperture white. There is a depressed white tubercle on the parietal wall. A tawny-brown variety is not uncommon.

#### Genus TORNATELLINA, Beck.

##### 1. TORNATELLINA OBLONGA.

*Tornatellina oblonga*, Pease, Proc. Zool. Soc. 1864, p. 673; 1871, p. 473; Journ. de Conch. 1871, p. 93; Pfeiffer, Mon. Hel. vi. p. 264; Schmeltz, Cat. Mus. Godeff. v. p. 89; Garrett, Proc. Phil. Acad. Nat. Sci. 1879, p. 21; Journ. Phil. Acad. Nat. Sci. 1881, p. 398, 1885, p. 81.

*Tornatellina bacillaris*, Mousson, Journ. de Conch. 1871, p. 16, pl. 3. fig. 5; Schmeltz, Cat. Mus. Godeff. v. pp. 89, 90; Pfeiffer, Mon. Hel. viii. p. 316.

Inhabits all the groups from the Marquesas and Paumotus to the Viti Islands. On the ground in forests from near the sea-shore to 2000 feet above sea-level.

Its slender form, imperforate base, and nearly vertical simple columella will distinguish it.

##### 2. TORNATELLINA CONICA.

*Tornatellina conica*, Mousson, Journ. de Conch. 1869, p. 342, pl. 14. fig. 8; (var. *impressa*), p. 16; Pease, Proc. Zool. Soc. 1871, p. 473; Pfeiffer, Mon. Hel. viii. p. 316; Garrett, Proc. Phil. Acad. Nat. Sci. 1879, p. 21; Journ. Phil. Acad. Nat. Sci. 1881, p. 399, 1885, p. 81; Schmeltz, Cat. Mus. Godeff. v. p. 89.

*Cionella conica*, Paetel, Cat. Conch. 1873, p. 106.

It has the same range as the preceding species, and inhabits the same station.

It is more robust and lighter-coloured than *T. oblonga*, the spire more tapering, body-whorl larger, more compressed, parietal lamina more prominent, and the columella more twisted than in that species.



3. *TORNATELLINA COLUMELLARIS.*

*Tornatellina columellaris*, Mousson, Journ. de Conch. 1870, p. 120; Pfeiffer, Mon. Hel. viii. p. 316.

This species was collected by Dr. Gräffe on Kanathia Island.

It is an imperforated, elongate-conical species of a pale horn-colour. It differs from the two preceding species in having small denticles in the palate. I do not know the species, which should be compared with *P. perplexa*, Garr., and *P. nitida*, Pse.

4. *TORNATELLINA PERFORATA.*

*Lamellaria perforata*, Liardet, Proc. Zool. Soc. 1876, p. 101, pl. 5. figs. 8, 8 a.

"Shell small, acute, polished, dark brown colour; epidermis thin; whorls  $5\frac{1}{2}$ , convex, spirally striate, with a white apertural lamina; aperture oblique, pyriform; columellar lip white, projecting from the base of the shell, expanding slightly over region of umbilicus; outer lip impressed and of a deep purple tint.

"This shell is found embedded in the bark of dead logs.

"Note.—The animal has the tips of the eye-pedicels bulbous.

"Hab. Taviuni, Fiji." (*Liardet.*)

Also unknown to me.

Genus *VERTIGO*, Müller.1. *VERTIGO PEDICULUS.*

*Pupa pediculus*, Shuttleworth, Bern. Mitth. 1852, p. 296; Pfeiffer, Mon. Hel. iii. p. 557; Schmeltz, Cat. Mus. Godeff. v. p. 89; Mousson (var. *samoensis*), Journ. de Conch. 1865, p. 175.

*Vertigo pediculus*, Pfeiffer, Vers, p. 177; (*Alæa*) H. & A. Adams, Gen. Moll. ii. p. 172; Mousson, Journ. de Conch. 1869, p. 341; Pease, Proc. Zool. Soc. 1871, pp. 463, 474; Garrett, Proc. Phil. Acad. Nat. Sci. 1879, p. 19; Journ. Phil. Acad. Nat. Sci. 1881, p. 400, 1885, p. 83.

*Pupa samoensis*, "MSS.," Schmeltz, Cat. Mus. Godeff. iv. p. 108; (*Sphyradium*) Paetel, Cat. Conch. p. 108.

*Pupa nitens*, Pease, Proc. Zool. Soc. 1860, p. 439; Pfeiffer, Mon. Hel. vi. p. 335.

*Vertigo nitens*, Pease, Proc. Zool. Soc. 1871, pp. 463, 474.

*Pupa hyalina*, "Zelebør," Pfeiffer, Mon. Hel. vi. p. 329.

*Vertigo hyalina*, Pease, Proc. Zool. Soc. 1871, p. 474.

*Vertigo nacca*, Gould, Proc. Bost. Soc. Nat. Hist. 1862, p. 280; Otia Conch. p. 237; Pease, Proc. Zool. Soc. 1871, pp. 463, 474.

*Pupa nacca*, Pfeiffer, Mon. Hel. vi. p. 330.

This species is common to all the Polynesian groups, and is generally diffused through the Viti Islands.

Its minute size, ovate-oblong shape, hyaline texture, obtuse spire, rounded aperture, and the thin slightly expanded lip will readily distinguish it. There are usually 5 denticles in the aperture.

## 2. VERTIGO TANTILLA.

*Pupa (Vertigo) tantilla*, Gould, Proc. Bost. Soc. Nat. Hist. 1847, p. 197; Pfeiffer, Mon. Hel. iii. p. 557; (*Vertigo*) Mousson, Journ. de Couch. 1870, p. 127; (*Vertigo*) Schmeltz, Cat. Mus. Godeff. iv. p. 69; (*Pupinella*) Paetel, Cat. Couch. 1873, p. 108.

*Vertigo tantilla*, Gould, Expl. Exp., Shells, p. 92, fig. 103; (*Aiea*) H. & A. Adams, Gen. Moll. ii. p. 172; Pease, Proc. Zool. Soc. 1871, pp. 460, 463, 474; Garrett, Journ. Phil. Acad. Nat. Sci. 1881, p. 400, 1885, p. 84.

*Pupa pleurophora*, Shuttleworth, Bern. Mittheil. 1852, p. 296; Pfeiffer, Mon. Hel. iii. p. 560.

*Vertigo pleurophora*, Pease, Proc. Zool. Soc. 1871, p. 474.

*Pupa dunkeri*, "Zeilebor," Pfeiffer, Mon. Hel. vi. p. 333.

*Vertigo dunkeri*, Pease, Proc. Zool. Soc. 1871, p. 474.

*Vertigo armata*, Pease, Proc. Zool. Soc. 1871, pp. 461, 474.

*Pupa armata*, Pfeiffer, Mon. Hel. viii. p. 407.

*Vertigo dentifera*, Pease, Proc. Zool. Soc. 1871, pp. 462, 474.

*Pupa dentifera*, Pfeiffer, Mon. Hel. viii. p. 408.

Ranges from the Society to the Viti Islands. This and the preceding species are found beneath rotten wood, under stones, and amongst decaying leaves.

In shape it varies from an abbreviate-ovate to oblong-oval, and also in a greater or less degree in the relative proportion of the whorls. Colour pale corneous under a brownish, more or less distinctly shagreened epidermis, which in perfect examples is furnished with oblique membranous riblets. The last whorl, behind the peristome, is frequently bisulcate.

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March 1, 1887.

Prof. W. H. Flower, LL.D., F.R.S., President, in the Chair.

Prof. Jeffrey Bell read extracts from a communication sent him by Mr. Edgar Thurston, Superintendent of the Government Central Museum, Madras, with reference to a Batrachian of the genus *Cacopus*. Of a specimen of *C. globulosus*, Mr. Thurston wrote:—

"On laying open the visceral cavity, the globular shape was found to be due to an enormous distention of the œsophagus and stomach, the latter occupying nearly the whole of the abdominal cavity, and the remaining viscera &c. being compressed and lying posteriorly. There was no distention of the intestinal tract. The distention of the œsophagus and stomach was found, on section, to be caused by the presence in their cavities of a mass of winged White Ants (*Termites*), which, when dried, weighed 326 grains."

The colour of *C. systoma* during life was reported to be "primrose-yellow marbled with black, the yellow colouring-material rapidly dissolving in alcohol."

